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METHOD AND DEVICE FOR AUTHENTICATING A SUBSCRIBER FOR UTILIZING SERVICES IN A WIRELESS LAN (WLAN)

- 5 The invention relates to a method and device for authenticating a subscriber for utilizing services in a wireless LAN (WLAN) while using an IP multimedia subsystem (IMS) of a mobile radio network.
- 10 Methods for authenticating WLAN subscribers in a mobile radio network are known from the journal "Funkschau", issue 09/2002, pages 14-15, namely authentication via a NAI (Network Access Identifier) and optionally via a SIM card, and authentication using the IPv6 (Internet
- 15 Protocol Version 6) and a so-called SIM-6 mechanism. In general, authentication of a wireless LAN subscriber is effected via an HTTP protocol.

The object of this invention is to efficiently

20 authenticate a subscriber of a wireless LAN who is also a
mobile radio network subscriber, while utilizing services
in a mobile radio network.

The object is achieved according to the invention by the

25 objects of the independent claims with reference to the

method and device. Developments of the invention are

specified in the subclaims. Authentication while using an

IP multimedia subsystem, according to the invention, has

the advantage that a subscriber is authenticated for any

30 services that can be reached via the wireless LAN,

without the installation of a separate server for

REPLACEMENT SHEET (RULE 26)



Claims

1. Method for authenticating a subscriber MT (6) for utilizing services in a wireless LAN (WLAN) (10) while using an IP multimedia subsystem (IMS) (3),

characterized in that

- a subscriber MT (6) who is to be authenticated and who is located at a location having WLAN coverage, receives an IP address from the WLAN (10) in an attributed manner, after which the subscriber authenticates himself to the IP multimedia subsystem (3) while giving this IP address, whereby an element (WAGW(2)) of the WLAN (10) is informed of the result of the authentication of the subscriber MT (6) with regard to the IMS (3).
 - 2. Method according to Claim 1,
- 20 characterized in that

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- a subscriber MT (6) of a wireless LAN (WLAN) is authenticated while using an IP multimedia subsystem (IMS) (3) of a mobile radio network.
- 3. Method according to one of the above claims,

characterized in that

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a subscriber MT (6) of a wireless LAN (WLAN) (10) in an IP multimedia subsystem (3) is authenticated while using an offline home subscriber system (HSS) (5).

5 4. Method according to one of the above claims,

characterized in that

- a subscriber MT (6) in a wireless LAN (WLAN) (10) in an IP multimedia subsystem (3) is authenticated while using an authentication server (AAA server).
 - 5. Method according to one of the above claims,
- 15 characterized in that

the key (Ki) used by the subscriber MT (6) to authenticate himself in the mobile communication network is also used for authentication in the wireless LAN (WLAN) (10).

6. Method according to one of the above claims,

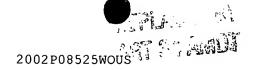
characterized in that

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the subscriber MT (6) transmits, via the wireless LAN (10), an SIP register message to a device (CSCF) (4) of the IMS (3), which transmits a request for authentication of this IP multimedia subsystem (IMS) subscriber, using the mechanisms provided for an IP multimedia subsystem



- (IMS) authentication, to the home subscriber system (HSS)
 (5), after which the home subscriber system (HSS) (5)
 authenticates the subscriber MT (6) using these
 mechanisms and communicates the result of the
 authentication to the wireless LAN access gateway (WAGW)
 (2).
 - 7. Method according to one of the above claims,
- 10 characterized in that

an association is implemented between the subscriber terminal MT (6) and the wireless LAN (WLAN) (10) for the purpose of transmitting and receiving via the radio interface between subscriber MT (6) and wireless LAN (WLAN) (10).

- 8. Method according to one of the above claims,
- 20 characterized in that

the subscriber terminal MT (6) receives an IP address from the address area of the wireless LAN (10), with which - together with all other IP transport-based data - it can transmit and receive SIP messages that transport authentication messages from and to the IP multimedia subsystem (IMS) (3).

9. Method according to one of the above claims,

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characterized in that

the access to services is controlled via a wireless LAN access gateway (WAGW) (2), which monitors successful authentication in the IP multimedia subsystem (IMS) (3).

10. Method according to one of the above claims,

characterized in that

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the wireless LAN (WLAN) (10) is connected to the IP multimedia subsystem (IMS) (3) via a Gi interface.

11. Method according to one of the above claims,

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characterized in that

the wireless LAN (WLAN) (10) is connected to the IP multimedia subsystem (IMS) (3) via an Mm interface,

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12. Method according to one of the above claims,

characterized in that

- the result of the authentication is fed to the wireless LAN access gateway (WAGW) (2) by a P-CSCF(1) (proxy-call state control function)/policy control function) at a location having WLAN coverage (hotspot).
- 30 13. Method according to Claim 9,



characterized in that

the wireless LAN (WLAN) (10) has a proxy-call state

5 control function node (P-CSCF) (1) which forwards the SIP messages to the corresponding entity in the IP multimedia subsystem (SIP request) and controls the WLAN access gateway (WAGW) (2) with regard to the authentication result (SIP response) of the IP multimedia subsystem

10 (IMS) (3).

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14. Method according to Claim 9,

characterized in that

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instructions are provided to the WLAN access gateway (WAGW) (2) on the basis of the result of the authentication in the IP multimedia subsystem (3), as to how the data traffic of a subscriber MT (6) is to be handled by the WLAN access gateway (WAGW) (2), in particular instructions regarding the blocking of data traffic.

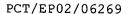
15. Method according to one of the above claims,

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characterized in that

the proxy-call state control function (P-CSCF)(1), by means of a policy control function, controls the data traffic through the WLAN access gateway (WAGW) (2) and



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grants, restricts, increases or declin

grants, restricts, increases or declines the quantity and/or quality of the data flow of a subscriber MT (6) through the WLAN access gateway (WAGW) (2).

5 16. Method according to one of the above claims

characterized in that

the policy control function is part of the proxy-call
state control function node (P-CSCF)(1) or is a separate
unit.

- 17. Method according to one of the above claims,
- 15 characterized in that

the result of the authentication is fed to the wireless LAN access gateway (WAGW) (2) by the CSCF (call state control function) (4) /policy control function in the IP multimedia subsystem (IMS) (3).

18. Method according to Claim 14,

characterized in that

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the call state control function node (CSCF) (4) of the IP multimedia subsystem (3) controls the WLAN access gateway (WAGW) (2) with regard to the authentication result of the IP multimedia subsystem (3).



19. Method according to Claim 15,

characterized in that

5 the proxy-call state control function (P-CSCF)(1), by means of a policy control function, controls the data traffic through the WLAN access gateway (WAGW) (2), and grants, restricts, increases or declines the quantity and/or quality of the data flow of a subscriber MT (6) 10 through the WLAN access gateway (WAGW) (2).

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20. Method according to Claim 15,

characterized in that

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- a Go interface is installed between the call state control
- function node (CSCF) (4) of the IP multimedia subsystem (3) and the WLAN access gateway (WAGW) (2), for protected 20 data transfer.
 - 21. Method according to one of the above claims,

characterized in that

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the authentication result is evaluated by expanded functionalities in the wireless LAN access gateway (WAGW) (2).

30 22. Method according to Claim 18, characterized in that

- the authentication result received from the IP multimedia subsystem (IMS) (3) is converted by the WLAN access gateway (2), whereby said WLAN access gateway (2) allows subscriber data to pass through completely or with restrictions.
- 10 23. Method according to Claim 19,

characterized in that

- the evaluation of the authentication result (SIP messages) is implemented using an "application layer gateway".
 - 24. Method according to one of the above claims,
- 20 characterized in that

the subscriber MT (6) of the wireless LAN (WLAN) (10) is also a subscriber of the mobile communication network.

25 25. Method according to one of the above claims,

characterized in that

the wireless LAN network (WLAN) is integrated into mobile communication networks with the help of ETSI HiperLan and IEEE

802.11.

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- 26. Device for authenticating a subscriber MT (6) for utilizing services in a wireless LAN (WLAN) (10) with the help of an IP multimedia subsystem (IMS) (3),
- 10 characterized in that
 - a device constituting the proxy call state control function node (1) by means of the policy control function [a by an IP multimedia subsystem that (sic)] is
- configured such that an authentication result that is received is evaluated and the quantity and/or quality of the data flow through the WLAN access gateway (2) of a subscriber MT (6) is thus granted, restricted, increased or declined.

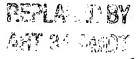
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- 27. Device according to Claim 23,
- characterized in that
- 25 the device constituting the proxy call state control function
 - node (1) is a node in the WLAN (10).
 - 28. Device according to one of the above claims,

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characterized in that

the device constituting the proxy call state control function

- 5 node (1) of the IP multimedia subsystem (3) is provided for controlling authentication in the WLAN (10).
 - 29. Device according to one of the above claims,
- 10 characterized in that

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the WLAN access gateway (2) has a device that is configured such that said device converts the authentication result which is received from the IP multimedia subsystem (3), by allowing subscriber data to pass through completely or with restrictions.

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